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VARUN AJITH

PROFILE

A recent graduate in Robotics & Automation Engineering with a PG Diploma in Industrial Automation, complemented by proficiency in Web designing. Recognized for my resilient character in navigating challenges within robotics. I thrive on exploring new aspects and problem-solving. My expertise lies in autonomous navigation, which I believe holds vast potential for innovation. Committed to pushing the boundaries of technology to create transformative solutions.

EDUCATION

- **BTech in Robotics and Automation**
  SAINTGITS College of Engineering, Kottayam
  Aug,2023
  CGPA: 7.7
- **Higher Secondary School**
  GHSS, Ramapuram, Alappuzha
  April,2017
  Aggregate: 85%
- **Secondary School**
  Bishop Moore Vidyapith, Kayamkulam
  Aggregate: 80%

PROJECT

Autonomous Hexapod
SAINTGITS College of Engineering, Kottayam
2023

For the Autonomous Hexapod project, we employed a Raspberry Pi 4 as the core computing unit and used ROS (Robot Operating System) as the operating system. Path planning was a critical aspect, and we implemented the Rapidly-exploring Random Tree (RRT) algorithm to navigate unpredictable terrains, such as landslides. Additionally, we integrated object identification using a Convolutional Neural Network (CNN) algorithm, enhancing the hexapod's ability to identify survivors and victims. The project also involved extensive sensor integration, including LiDAR for comprehensive terrain analysis.

TECHNICAL SKILLS

- Python proficiency
- ROS Proficiency
- PCB Designing
- CAD Designing
- PLC Programming
- Web Designing
- SCADA Designing
- HMI Programming
- Panel Wiring
- Hardware Integration
- HTML Fundamentals
- PAC Programming

SOFT SKILLS

- Attention to detail
- Natural Negotiator
- Multitasking
- Consistent problem solver
- Team player

INTRESTS

- Sketching
- Reading

LANGUAGES

- English
- Malayalam
- Tamil
- Hindi

Metal Sorting Conveyor
SMEC Labs, Kochi
2023

In the Metal Sorting Conveyor project, we applied our expertise in ladder logic and sensor integration to successfully separate metal from the given objects. We employed an Allen Bradley 1766 L32 BWA PLC to make this project. The project incorporated inductive and proximity sensors, and we implemented a counting method to accurately determine the specific amount of sorted metal. This experience showcased our ability to design and implement efficient control logic for industrial automation processes.

Auto Mains Fail (AMF)
SMEC Labs, Kochi
2023
The AMF project provided an opportunity to enhance our wiring skills and delve into ladder logic programming. We employed an Allen Bradley 1766 L32 BWA PLC to prototype an Auto Mains Fail system. This project not only demonstrated our ability to implement ladder logic for automatic switching during mains power failures but also expanded our knowledge of PLC applications in real-world scenarios.

Silo Simulator
SMEC Labs, Kochi
2023
Created a comprehensive Silo Simulator using Intouch SCADA, featuring integrated components like conveyor belts, sensors, and control mechanisms. Automated the material handling process: initiating the simulation activates the conveyor and box movement, while sensors and indicators regulate filling, preventing overflow and ensuring efficient operations. Demonstrated proficiency in SCADA development, automation, and control system design through this project, highlighting streamlined material handling and process optimization.

Gesture Controlled Robo
SAINTGITS College of Engineering, Kottayam
2022
In the Gesture Controlled Robot Car project, we utilized the Arduino IDE and C programming language to code the entire system. This experience deepened our understanding of MEMS (Micro-Electro-Mechanical Systems) and the functioning of RF transmitters with Arduino. The project aimed at creating an entertaining robot car that responded to gestures, showcasing

our proficiency in Arduino programming and wireless communication technologies.

2-D Plotter
Personal Project
2024
Designed and developed a basic 2D plotter utilizing Arduino microcontroller, featuring two stepper motors for precise movement and a servo motor for controlling the pen. The plotter was engineered to streamline assignments and paperwork tasks, showcasing practical problem-solving and hands-on engineering skills. Managed the project from conception to execution, demonstrating proficiency in hardware integration, programming, and project management.

CERTIFICATION

- **PG Diploma in Industrial Automation**

  Certified through a rigorous 3-month program at SMEC labs, Kochi, specializing in Industrial Automation. Acquired comprehensive knowledge of various Programmable Logic Controllers (PLCs) including Allen-Bradley, Omron, Delta, Schneider, Siemens, ABB, and GE, along with in-depth understanding of SCADA systems and related technologies. Demonstrated proficiency in implementing automation solutions through hands-on training and practical projects, showcasing aptitude for mastering diverse industrial automation platforms.

- **3D Game Development Workshop by Pacelab**

  Participated in a 3D Game Development workshop conducted by Pacelab at LMS College, Trivandrum. Acquired fundamental knowledge of Unity and game development concepts. Explored the basics of creating games using Unity, demonstrating a practical understanding of game design and development.

- **IoT and Drones Workshop by Bennett University**
  Engaged in an IoT and Drones workshop organized by Bennett University at SAINTGITS College of Engineering. Gained hands-on experience in assembling IoT devices and drones. Developed a foundational understanding of flight controllers and stabilization techniques, enriching my knowledge in the application of IoT and drones in real-world scenarios.

- **Robotics Arm Workshop by ISTE ST**
  Participated in a Robotics Arm workshop organized by ISTE ST at the College of Engineering, Trivandrum. Assembled a laser-cut prototype of a manipulator and learned to drive it

using servos through Arduino. Acquired practical skills in coding manipulator functions, demonstrating proficiency in the application of Arduino for robotics.

- **ROS in Robotics Workshop**
  Attended a Robotics Operating System (ROS) workshop, which provided hands-on experience in using Autocad and 3D printing technologies. Explored the implementation of ROS in robotics projects, subsequently applying this knowledge in the development of my final year project. Acquired skills in CAD design and 3D printing for robotics applications.

PUBLICATION

Published in the International Journal of Science, Engineering, and Technology (IJSET), Volume 12, Issue 1, 2024.

This publication showcases the development and implementation of an innovative six-legged robot designed for autonomous search and rescue operations on unpredictable terrain, such as landslides. The robot utilizes advanced navigation algorithms to traverse challenging landscapes and employs sensor arrays to detect the presence of individuals in distress. Upon detection, the robot autonomously coordinates with rescue teams by transmitting precise coordinates, expediting the rescue process and potentially saving lives. This research represents a significant advancement in the field of robotics, demonstrating the practical application of autonomous systems in critical scenarios.

VISION

Driven by a deep-seated passion for innovation and a relentless pursuit of excellence, my ultimate ambition is to establish a pioneering startup in the field of robotics and automation. With a firm foundation of knowledge and experience gained through continuous learning and hands-on work, I aim to lead a team of visionary individuals dedicated to revolutionizing industries through groundbreaking technologies. Committed to fostering a culture of creativity, collaboration, and forward-thinking, I envision our startup as a catalyst for positive change, driving meaningful advancements and shaping the future of automation.

EXPECTATION

I am eager to embark on a career path that offers opportunities for continuous learning, growth, and professional development in the dynamic field of robotics and automation. I am seeking a collaborative and innovative work environment where I can apply my skills and expertise to tackle complex challenges and contribute to impactful projects. I aspire to work alongside like-minded individuals who are passionate about pushing the boundaries of technology and making a meaningful difference in the world. Ultimately, I hope to find a role that fosters creativity, encourages exploration, and allows me to thrive both personally and professionally.